

Part 1 -- Amendments to the Specification

1. (Amended) A varactor comprising:
a diode junction;
a depletion region adjacent to the diode junction; and
a doped region including the depletion region and having a
5 nonuniform dopant concentration profile that continuously increases with
increasing depth of the doped region from the diode junction;
and wherein the nonuniform dopant concentration profile causes the
varactor to have an approximately linear capacitance/voltage response
characteristic.

2. Canceled

3. (Amended) A varactor as defined in claim 1 wherein:
the nonuniform dopant concentration profile is defined by an
equation $N=Bx^m$, where N is the dopant concentration, x is the depth of the
doped region, B is a concentration constant and m is an exponent that determines
5 the degree of curvature of the dopant profile, and m is greater than 1.

4. Canceled

5. (Original) A varactor as defined in claim 3 wherein m is about 3.

6. (Amended) A varactor as defined in claim 3 wherein:
 B is in a range from about $1.0E13/cm^3$ to about $1.0E19/cm^3$; and
 m is greater than zero one.

7. (Original) A varactor as defined in claim 6 wherein B is about
 $1.0E16/cm^3$.

8.-10. Canceled

11-17. Withdrawn